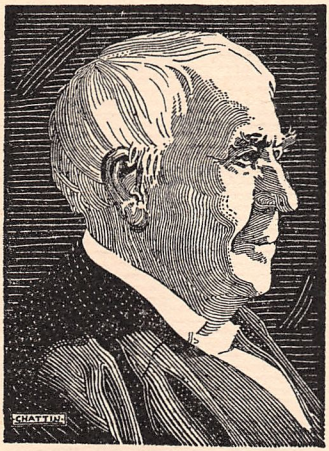

EDISON'S PART IN RADIO

and other

Notable Achievements

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THOMAS A. EDISON, INC., Orange, N. J.

The Great Contributions of THOMAS A. EDISON *to Radio*

AS is universally known, Thomas A. Edison is the inventor of the phonograph, the incandescent lamp, and the motion picture camera. But there are comparatively few people who realize that the same genius who made these epochal achievements discovered the fundamental principle on which all radio is based. In 1875, Mr. Edison discovered the hitherto unknown phenomenon caused by electric waves in free space, which he called "Etheric Force." In truth, this might well be called the birth of radio, for without knowledge of "Etheric Force" radio might never have been even dreamed of.

In 1883, Mr. Edison, while experimenting with his incandescent lamp, made another discovery which plays a most important part in every radio set. He found that an

independent wire or plate placed between the legs of the filament of an incandescent lamp acted as a valve to control the flow of current. It was termed the "Edison Effect" and a patent was issued to him in 1883. This discovery covers the fundamental principle on which every radio tube is based. Had Mr. Edison not discovered it, there might still be radio, but it would be of the dot-dash, crystal-receiver variety, and radio telephony might not be known. It is a far cry from such a picture to the great broadcasting chains of to-day and the millions of multiple-tube sets now operating in homes the world over.

In the broadcasting studio we find other evidences of Mr. Edison's contributions to the radio field. Every person who has listened to a broadcast program has heard the announcer refer familiarly to the "mike." This, also, was an invention of Mr. Edison's, and without it, every radio set would be useless. The present microphone is merely a glorified form of the

carbon telephone transmitter, as it was then called.

Another instance of Mr. Edison's work on aerial communication was in his system of transmitting messages to and from moving trains (by induction), and between vessels at sea. This system was put into actual operation on the Lehigh Valley Railroad in 1888.

Not alone in these discoveries has Thomas A. Edison contributed to the Radio Art. His early efforts in improving the construction of dynamos, and his invention of systems for distribution, regulation, and measurement of electric current have been great factors in all electrical communication.

The coming year promises to be a spectacular one in the radio world. Innovations have been made, and the quality of receiving sets has on the whole been vastly improved. It is a year which is especially marked by the entrance of the inventor's company into the field of radio sets and radio-phonograph combinations.

Abbreviated Chronology of *No*
in the Life of THO

Compiled by Wm. H. Meadowcroft, Assistant to M

1847	Born February 11th, at Milan, Ohio
1854	Moved to Port Huron, Mich.
1857	Started chemical laboratory in cellar of his home
1859	Became newsboy and "candy butcher" on trains of Grand Trunk Railway, running between Port Huron and Detroit
1862	Printed and published a newspaper, "The Weekly Herald," on the train. The first newspaper ever printed on a moving train
1862	Saved from death young son of J. U. Mackensie, station agent at Mount Clements, Mich. In gratitude, the father taught Edison telegraphy
1862	Put up a telegraph line from Port Huron railway station to village and worked in local office
1863	First position as regular telegraph operator on Grand Trunk Railway, at Stratford Junction, Canada
1863 to 1868	Spent nearly five arduous years as a telegraph operator in various cities of the Central Western states, always studying and experimenting to improve the apparatus
1868	Entered office of Western Union in Boston as operator. Later, resigned to experiment on duplex system of telegraphy, and went into private telegraph line business

table Events and Achievements
MAS ALVA EDISON

Edison, and Author of "The Boy's Life of Edison"

1868 Made his first patented invention, Electrical Vote Recorder. Application for patent signed October 11, 1868

1869 Landed in New York City from Boston boat, poor and in debt. Shortly afterward, looking for work, was in operating room of Gold & Stock Telegraph Company when apparatus broke down. No one but Edison could fix it and he was given job as superintendent at $300 a month

1869 Invented "Universal" stock ticker, also the Unison Device

1870 Received first money for inventions, $40,000. Opened manufacturing shop in Newark, where he made stock tickers, etc.

1871 Assisted Sholes, the inventor of the typewriter, in making the first successful working model

1872 to 1876 Worked on and completed many inventions, including motograph, automatic telegraph systems, duplex, quadruplex, sextuplex and multiplex telegraph systems; also paraffin paper, carbon rheostat, microtasimeter, etc.

1875 *Discovered previously unknown and unique electric phenomenon, which he called "Etheric Force." Twelve years afterward this phenomenon was recognized as due to electric waves in free space, and became the foundation of wireless telegraphy*

1876 Moved from Newark to laboratory at Menlo Park, N. J.

1876 to 1877 *Invented the carbon telephone transmitter, which made telephony a commercial art. This invention included the Microphone, which makes Radio possible*

1877 Invented the phonograph. Patent was issued by United States Patent Office within two months after application, without a single reference

1878 In a prophetic article in the North American Review he foreshadowed ten prominent uses for the phonograph—all since accomplished

1879 Invented incandescent electric lamp. The invention was perfected October 21st, 1879, on which day the first lamp embodying the principles of the modern incandescent lamp was put in circuit and maintained its incandescence for over 40 hours

1879 Invented radical improvements in construction of dynamos, making them suitable for generators for systems of distribution of current for light, heat and power. Invented systems of distribution, regulation and measurement of electric current. Invented sockets, switches, etc.

1879 December 31. Gave public demonstration of electric lighting system in streets and buildings at Menlo Park, N. J., using underground mains

1880 Invented magnetic ore separator

1881 Opened business offices at No. 65 Fifth Avenue, New York City

1881 Established first commercial incandescent lamp factory at Harrison, N. J. Organized and established shops for the manufacture of dynamos, underground conductors, sockets, switches, fixtures, meters, etc.

1880 to 1882 Invented and installed first life-sized electric railway for freight and passengers at Menlo Park, N. J.

1882 September 4. Commenced operation of first commercial central station in New York City for distribution of electric current for light, power and heat

1883 First three-wire central station for electric lighting installed at Sunbury, Pa.

1883 *Discovered a previously unknown phenomenon. He found that an independent wire or plate placed between the legs of the filament of an incandescent lamp acted as a valve to control flow of current. This became known as the "Edison Effect." Patent was issued to him in 1883, No. 307,031. This discovery covers the fundamental principle on which every modern Radio lamp (or tube) is based*

1880 to 1887 Strenuous years of invention and endeavor in extending, improving and exploiting the electric light, heat and power systems. During these years he took out upwards of three hundred patents

1881 to 1887 *Invented system of wireless telegraphy, (by induction) to and from trains in motion, or between moving trains and railway stations. Same principle capable of use at sea*

1887 Moved to present laboratory at West Orange, New Jersey

1887 to 1890 Invented improvements on present type of cylinder phonograph. In these four years took out over eighty patents on these improvements, and also established a very extensive commercial business in the manufacture and sale of phonographs and records, including dictating machine, shavable record and shaving machine

1891 Invented the motion picture camera. By the invention of this mechanism, with the continuous tape-like film originated by Eastman, it became possible to take and reproduce motion pictures as we have them at this day

1891 to 1900 These years were spent on the great iron ore concentrating enterprise, in which Edison did some of his most brilliant engineering work. He made many important inventions during this period

1900 to 1910 This period covers the work resulting in the invention of the Edison Alkaline Storage Battery, and its commercial introduction. The Edison Battery is now used in nearly two-thirds of all battery motivated units operated in the United States

1900 to 1909 During these years Edison established a Portland cement mill. He made many important inventions relating to the method and processes involved in the production of Portland cement

1902 Worked on improvements in the Edison Primary Battery

1907 Introduced for first time the Universal electric motor for operating dictating machines on all lighting circuits

1910 to 1914 Worked on improved disc phonograph. This work resulted in the production of an instrument and records which reproduce vocal and instrumental music with absolute fidelity and sweetness, and on the whole, Edison's disc phonograph commenced a new era in phonographs

1912 Introduced the Kinetophone or talking motion picture, after spending much time in its development during a number of years past. He foreshadowed the production of this combined device in 1887

1914 Owing to wartime embargoes, Edison found it necessary to develop a synthetic process for making carbolic acid. By tremendous concentration he developed the process, designed a plant, and in less than a month had it producing a ton a day

1914 On the night of December 9th, Edison's great plant at West Orange, N. J., was destroyed by fire. Immediate plans for rebuilding were laid, and new buildings began to arise almost before the ruins of the old were cold

1914 Invented the Telescribe, combining the telephone and the dictating phonograph, thus permitting the recording of both sides of telephone messages

1915 The great World War brought about shortages in the supplies of important chemicals, among them carbolic acid, Paraphenylenediamine, benzol, etc. Edison was a user of these and embargoes and shortages threatened to close his factories. He was equal to the situation and established in an exceedingly short time plants to manufacture the above named chemicals, and also others used in American industries. The products from these plants saved the day for himself and many other manufacturers in the United States

1916 Worked several months making important improvements in the manufacturing technique of disc phonograph records, and on studies of new methods and devices for recording. Worked on improved methods and processes for his chemical products

1916 to 1918 During these years, as President of the Naval Consulting Board he did a large amount of work connected with questions of national defense, particularly with reference to special experiments on over 40 major war problems for the United States Government. He left his business affairs in the hands of his Officials and devoted his entire time to this patriotic work

1919 to date After the Armistice he returned to his plant at Orange, N. J., and resumed the direction of his affairs. Since then he has filed applications for many patents and a large number of patents have been issued to him in this period. Altogether he controls about 1150 patents. At this writing he is devoting much of his time to investigating the possibility of growing rubber in the United States

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